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CHAPTER XVII

POPULATION AND LABOUR INPUTS

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. XVII. POPULATION AND LABOUR INPUTS

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XVII. POPULATION AND LABOUR INPUTS

List of Acronyms

ILO . . . . . International Labour Organization

XVII. POPULATION AND LABOUR INPUTS

A. Introduction

1. The SNA requires a definition of population to express gross domestic product and consumption expenditure in per capita terms. It also requires labour input variables, in order to examine productivity.

2. Many of the complications in the concepts described here stem from the existence of national boundaries. To facilitate exposition, consideration of these has been postponed to part C of the chapter, which thus starts off without any reference to them, as if a country without any cross-border movement of persons and with no cross-border ownership of enterprises were being considered.

B. Population and Labour Concepts without National Boundaries

3. Chart 1 summarises the first part of the chapter. Those concepts which are part of the SNA are in heavy boxes. The formal definition of these concepts are set out in part C of this chapter.

1. Population and employment

4. Population is, in principle, an annual average of frequent head counts, each of which relates to a point of time. (Censuses usually ascertain the number of people present on a specified night.) Thus population is the annual average number of people present. It includes the institutional population, though this is not covered by most labour force surveys.

5. The division of the number enumerated at a point of time into three categories, namely "employed", "unemployed" and "not in the labour force" depends upon each person's activity (or lack of it) during a reference period (usually a week) ending with the point of time to which the count relates. Employment has been defined by the International Labour Office (ILO) in the "Resolution concerning statistics of the economically-active population, employment, unemployment and underemployment" adopted by the thirteenth International Conference of Labour Statisticians. No definition is required here, but, as chart 1 indicates, provided that the definitions of employment and of jobs match one another, the average annual number of jobs exceeds the annual average number of persons employed by the average annual number of second, third, etc., jobs. Note that the second, third, etc., jobs of a person may either successively follow one another in a reference week or, as when someone has an evening job as well as a daytime job, run in parallel.

6. Employed persons who have more than one job during a reference week can only be classified by industry and by status in employment through the application of some essentially arbitrary convention as to which of their jobs is the most important one. On the practical plane, while household surveys can provide data about either or both of employment and jobs, establishment

surveys only provide data about jobs, so data on jobs tend to be more plentiful than data on persons employed.

7. Employment does not enter into the System, but jobs do; a job is like a transaction, while an employed person is not.

2. Jobs

8. In daily speech, a job is used in two senses: first, as a filled post in an institutional unit, e.g., "B has a job as truck driver with XYZ Company", and, second, to signify the occupation or nature of the activity, e.g., "B's job is driving an XYZ truck". The first of these is relevant here. Thus a job is defined as an explicit or implicit contract between a person and an institutional unit to perform work in return for compensation for a defined period or until further notice. The institutional unit may be the proprietor of an unincorporated enterprise; in this case the person is described as being self-employed and earns a mixed income.

9. There are a number of points here which require expansion:

(1) Both employee jobs and self-employment jobs are covered. The distinction between employee and compensation of employees on the one hand, and self-employment and mixed income on the other hand, is set out in <chapter VII, Primary Distribution of Income Account>. Chart 2 summarises part of that discussion.

(2) Work means any activity which contributes to the production of goods or services within the production boundary as defined in <chapter VI, Production Account>. The legality of the work and the age of the worker are, in principle, irrelevant.

(3) Mixed income and the compensation of employees are defined in <chapter VII, Primary Distribution of Income Account>. Compensation differs from labour cost, as defined by the ILO "Resolution concerning statistics of labour cost" adopted by the eleventh International Conference of Labour Statisticians only in including imputed employer contributions to unfunded insurance or pension schemes, and in excluding any taxes regarded as labour cost, together with the costs of training, welfare, recruitment and the provision of work clothing.

(4) The explicit or implicit contract relates to the provision of labour input, not to supplying output of a good or service, which is why it is described as for a defined period or until further notice. A bricklaying job paid by time or according to the number of bricks laid is an employee job, while a contract to lay a certain number of bricks for a given payment is not a job; the job is the bricklayer's notional self-employment contract. Similarly, a self-employment job of window cleaning is regarded as an

implicit contract by a person to hire himself or herself to do cleaning work. Quite separately, the person has contracts with customers to provide the service of window cleaning.

(5) There is one minor difference between a job as defined here and the category of persons "with a job but not at work" who are considered as employed in the ILO resolution adopted by the thirteenth International Conference of Labour Statisticians which was referred to above. This is that, on the ILO definition, the employed may include persons who are not being paid but have a "formal attachment to their job" in the form of "an assurance of return to work ... or an agreement as to the date of return". Such an understanding between an employer and a person on layoff or away on training is not counted as a job in the System.

10. Jobs may be classified not only as employee or self-employment, but also according to the standard activity classification.

3. Total hours worked

11. Output per job would be an excessively crude measure of productivity and total hours worked is the preferred measure of labour inputs for the System. The ILO "Resolution concerning statistics of hours of work", adopted by the tenth International Conference of Labour Statisticians, defines hours worked as follows:

Statistics of hours worked should include:

a) hours actually worked during normal periods of work;
b) time worked in addition to hours worked during normal periods of work, and generally paid at higher rates than normal rate (overtime);
c) time spent at the place of work on work such as the preparation of the workplace, repairs and maintenance, preparation and cleaning of tools, and the preparation of receipts, time sheets and reports;
d) time spent at the place of work waiting or standing-by for such reasons as lack of supply of work, breakdown of machinery, or accidents, or time spent at the place of work during which no work is done but for which payment is made under a guaranteed employment contract;
e) time corresponding to short periods of rest at the workplace, including tea and coffee breaks.

Statistics of hours actually worked should exclude:

a) hours paid for but not worked, such as paid annual leave, paid public holidays, paid sick leave;
b) meal breaks;
c) time spent on travel from home to work and vice versa.

12. Total hours worked is the aggregate number of hours actually worked during the year in employee and self-employment jobs.

13. The truism, for employee jobs, that hours worked equal hours paid less hours paid but not worked, plus hours worked by not paid, is a useful one, since many establishment surveys record hours paid, not hours worked, so that hours worked have to be estimated for each job group, using whatever information is available about paid leave, etc.

4. Full-time equivalence

14. An inferior alternative to expressing labour input in terms of total hours worked is to measure it in terms of full-time equivalent work years. Full-time equivalent employment is the number of full-time equivalent jobs, defined as total hours worked divided by average annual hours worked in full-time jobs.

15. The definition does not necessarily describes how the concept is estimated. The method sometimes used, of simply counting all part-time jobs as half a full-time job, is the crudest possible way of making an estimate. Since the length of a full-time job has changed through time and differs between industries, more sophisticated methods which establish the average proportion and average hours of less than full-week full-time jobs in each job group separately are preferable.

16. Even if the data are good enough to permit an estimation of total hours worked, full-time equivalent employment should nevertheless also appear in the national accounts. One reason is that this facilitates international comparisons with countries which can only estimate full-time equivalent employment. The other reason is that, since the full-time annual hours of a job group vary through time, the two concepts carry a partially different message. If, for example, more sickness or annual leave is taken, both shortening average annual full-time hours and, ceteris paribus, reducing total hours worked, full-time equivalent employment will scarcely change, while total hours worked will fall. So if the former rather than the latter is used as the denominator in calculating productivity changes, productivity will rise less or fall more. A similar point applies to international comparisons. If, however, full-time annual hours did not exclude paid sick leave, but total hours worked continued to do so, more sickness would cause full-time equivalent employment to rise more or fall less than would an equal increase in annual leave, so that productivity would rise less or fall more. This would make good sense - sickness undesirably interferes with production, while annual leave is a desirable alternative to it. But if information on absence from work through sickness is not available for estimating full-time annual hours, it will not be available for estimating total hours worked either.

17. In practice, total hours worked and average annual full-time hours may have to be estimated. In many countries, especially for monthly paid employee jobs, only normal or usual hours, any paid overtime, and annual and holiday

leave entitlements can be ascertained, and it may be impossible to estimate the subtraction to be made for average sickness leave from either total hours worked or annual full-time hours. This error will not affect full-time equivalent employment if sickness rates in part-time jobs are the same as in full-time jobs, so can be tolerated if it is unavoidable.

18. If the reference weeks used in the surveys that provide the data are not fully representative, the best available information on variations throughout the year should be used in estimating data for the year as a whole.

5. Employee labour input at constant compensation

19. Total hours worked and full-time equivalent employment are both physical measures of labour input. Output too can usually be measured in physical terms, such as tons or cubic metres, but this is not done in the national accounts, because the basic value per ton or cubic metre varies so much between products that these physical measures lack general economic significance. But compensation per hour or per full-time year of work varies enormously too, so that the physical measures of labour input also lack general economic significance. Their usefulness thus rests either upon the assumption that the mix of different kinds of labour is much the same in the different countries or at the different times examined, or upon their application in a social or political context, where interest centres upon personal welfare rather than upon the economics of production and income generation.

20. When output is measured both at current and at constant prices, it is natural to do the same with labour inputs as well as with intermediate inputs. However, mixed income, which is the return to self-employment, cannot be unambiguously divided between the return to labour and the returns to capital and entrepreneurship. For this reason, only the value of employee labour input (and not self-employed labour input) forms part of the System. Note that the measurement of employee labour inputs at current and constant prices is symmetrical with the measurement of output:

(1) Market prices and market compensation are assumed to measure the relative economic importance of different goods, services and jobs; the advantages and disadvantages of this assumption are the same for inputs as for outputs.

(2) Though the constant price and constant compensation concepts are defined as revaluations of quantities at base period prices or compensation levels, they can be estimated in practice as the sum, over all groups, of values at current price or compensation levels, each divided by an appropriate index.

(3) These group indices are estimates, calculated for a representative sample of jobs or of goods or services, with weights reflecting the relative importance of each of the sub-groups represented by a

selected and specified job, or by a selected and specified good or service. In other words, a compensation index is constructed like a price index.

21. While the value of employee labour input at constant compensation can be estimated by deflation of current values, as mentioned above, the data may also permit the direct approach of multiplying the current number of jobs in each job group by the base-period average annual compensation for jobs in that job group.

22. The coverage of the concept of compensation of employees is discussed in detail <chapter VII, Primary Distribution of Income Account>. The System records it both on a domestic basis and on a national basis, but in the present context it is only the domestic concept which is relevant.

C. National Boundaries

23. The complications that arise from the existence of national boundaries must now be examined. (Similar complications arise for regional accounts from regional boundaries.) Conceptual clarity requires that the everyday concept of a person or firm in a country be replaced by the precise notion of an institutional unit being resident in an economic territory. Residence and economic territory are discussed at length and defined in <chapter XIV, External Account>, in a way which fits together with the concept of Gross Domestic Product.

24. Without reproducing these definitions in their entirety, certain major features deserve to be stressed:

(1) A country's military bases and diplomatic premises abroad are part of its economic territory.

(2) The residence of an institutional unit is determined according to the location of its "centre of economic interest" which, for an enterprise is an establishment where it produces over a long period of time and, for a household, its principal residence.

(3) This means that an enterprise producing for one year or more in another economic territory is treated as having a centre of economic interest there. A notional quasi-corporation is deemed to exist and be resident in that other economic territory.

(4) It also means that persons living and working for one year or more in another economic territory are treated as resident there.

1. Population

25. Population is the annual average number of persons present in the economic territory of a country.

In this and other definitions, the fact that, by convention, economic territory includes embassies, military bases and ships and aircraft abroad should not be forgotten.

2. Jobs

26. Jobs too could be looked at in terms of the residence of the employee or self-employed person. For measuring labour input, however, only the residence of the employing or self-employing institutional unit is relevant, because resident producers alone contribute to gross domestic product. Thus the compensation of a person who lives in country C but works in country D is part of the value added of country D although it is part of the income of country C.

27. The principles thus determining the location of jobs apply equally to the territorial scope of total hours worked, of compensation of employees and mixed income, of full-time equivalent employment and of the value of employee labour input at constant compensation. Since these principles are different from those determining the territorial scope of the population, it should be remembered that full-time equivalent employment cannot be compared with population. The jobs held by persons resident in the country's economic territory, which can be looked at in relation to population, are not quite the same as the jobs with employers in the country's economic territory which are those that correspond to labour inputs into domestic production.
Note in particular that:

(1) The jobs carried out within a country's economic territory that are not counted are the jobs performed for institutional units resident in other countries which have not already engaged in transactions for a year or more. Thus the work of foreign short-term consultants and repairmen are not counted.

(2) Jobs carried out wholly or partly in another economic territory for a domestic institutional unit are included in the domestic count, unless the nature and duration of that employing institutional unit's activity in the other territory are such as to warrant treating it notionally as owning a quasi-corporation located there.

(3) The jobs of the staff of international organisations and of local staff of foreign embassies are excluded, since these employing units are not resident. Thus their compensation is not in the gross domestic product, through it is part of incomes.

"A job in the economic territory of country X is an explicit or implicit contract between a person (who may be resident in another economic territory than that of X) and an institutional unit (which may be itself acting as self-employer) resident in the economic territory of X to perform work in return for compensation (or to earn a mixed income) for a defined period or until further notice."

3. Total hours worked

28. Total hours worked in country X is the aggregate number of hours actually worked during the registration period in employee and self-employment jobs within its economic territory,

including
work outside that economic territory for domestic employer institutional units who have no centre of economic interest there,

excluding
work for foreign employer institutional units who have no centre of economic interest within the economic territory of country X.

Hours actually worked are to be interpreted as set out in the ILO definition quoted above.

4. Full-time equivalent employment

29. Full-time equivalent employment in country X, which equals the number of full-time equivalent jobs, is its total hours worked divided by average annual hours worked in full-time jobs within its economic territory.

Average annual hours are defined in the same way as hours worked.

5. Employee labour input at constant compensation

30. Employee labour input at constant compensation of country X is what the current annual compensation of employee jobs would be if it were calculated using the levels of compensation ruling during a selected base period.

Division of employee labour input at constant compensation into compensation of employees will yield an implicit compensation deflator comparable with the implicit expenditure deflators of the national accounts.

Chart 1

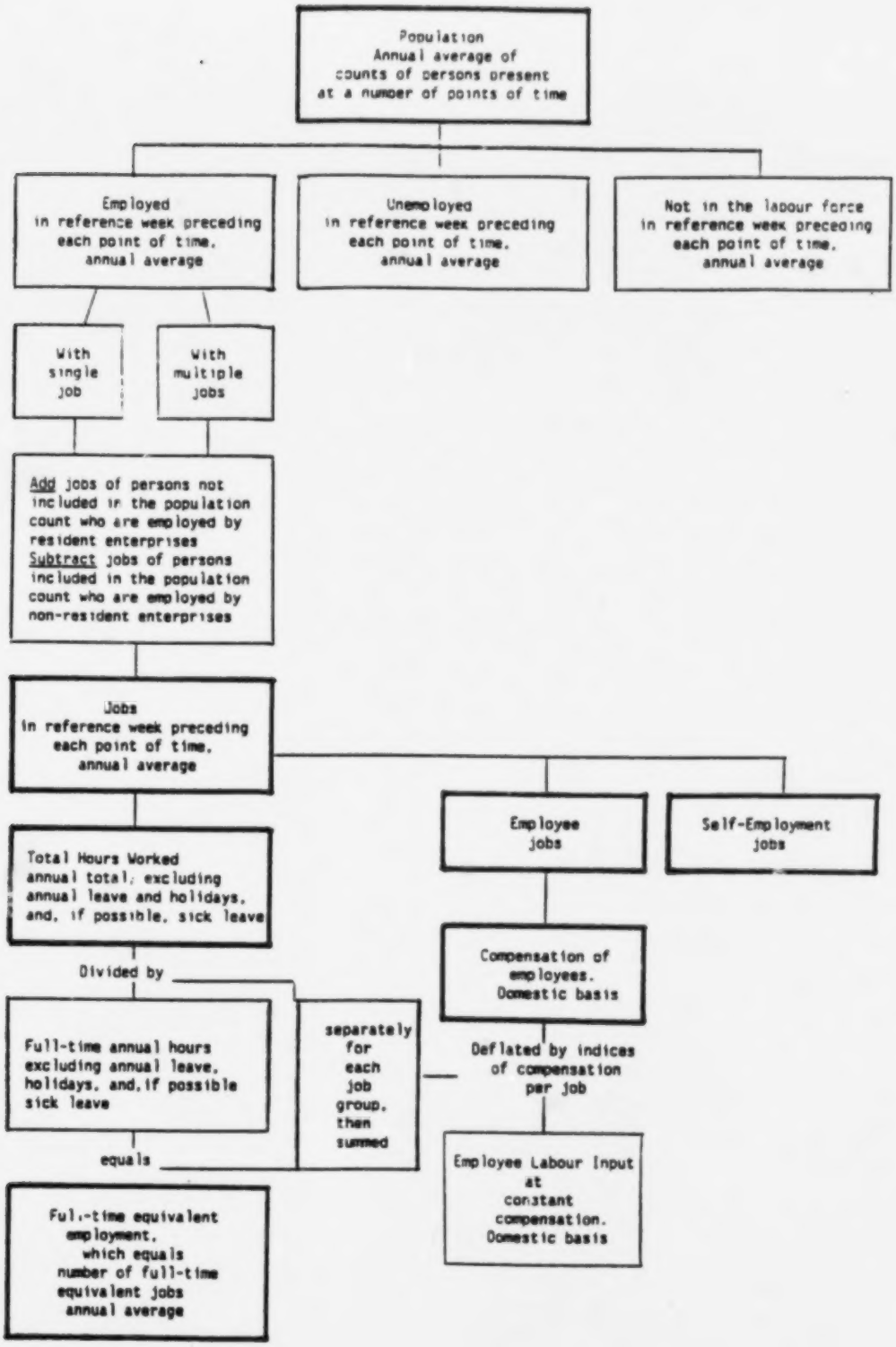
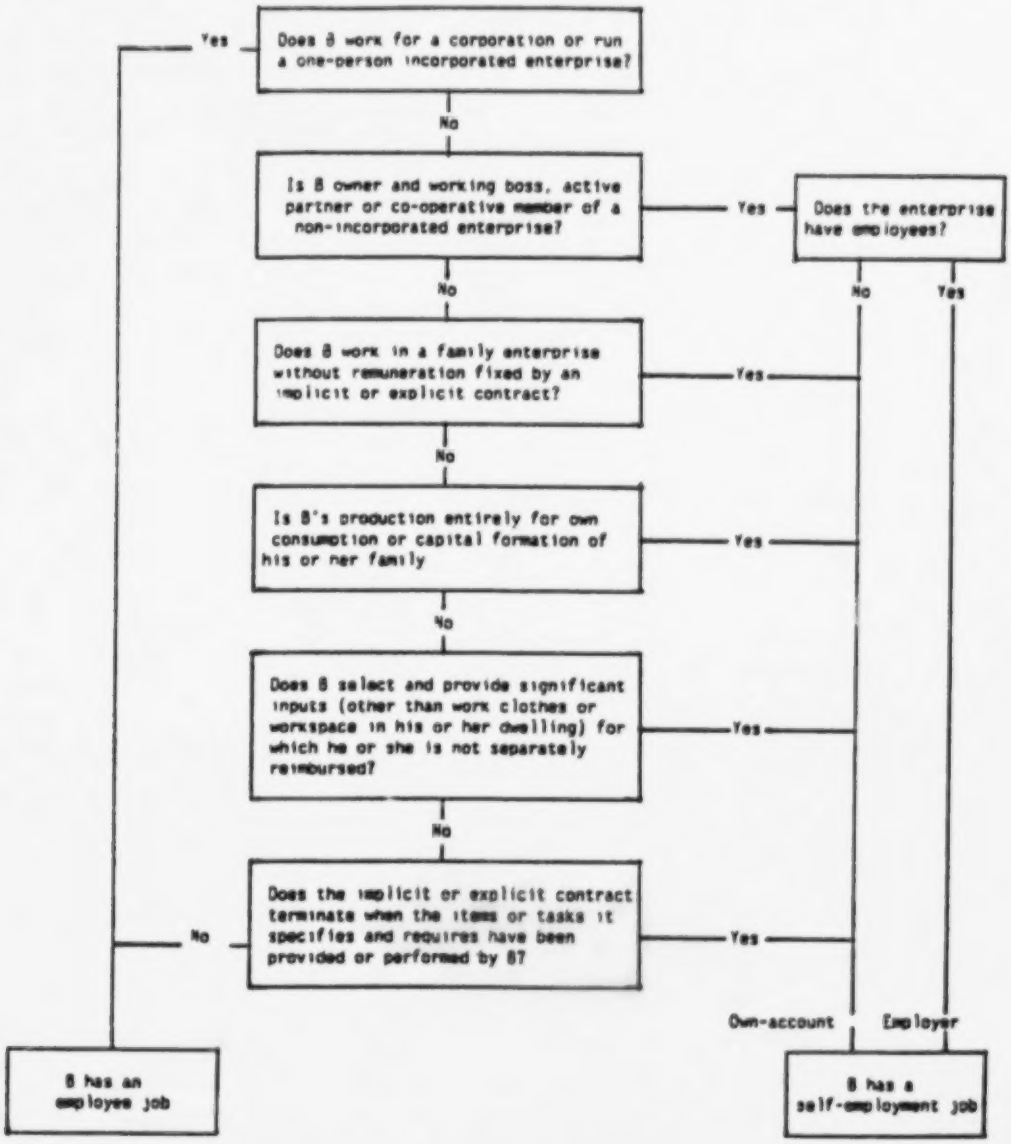

Population
Annual average of counts of persons present at a number of points of time
Employed in reference week preceding each point of time, annual average
Unemployed in reference week preceding each point of time, annual average
Not in the labour force in reference week preceding each point of time, annual average
With single job
With multiple jobs
Add jobs of persons not included in the population count who are employed by resident enterprises
Subtract jobs of persons included in the population count who are employed by non-resident enterprises
Jobs in reference week preceding each point of time, annual average
Employee jobs
Self-Employment jobs
Total Hours Worked annual total, excluding annual leave and holidays, and, if possible, sick leave
Compensation of employees, Domestic basis
Divided by
separately for each job group, then summed
Deflated by indices of compensation per job
Full-time annual hours excluding annual leave, holidays, and, if possible sick leave
equals
Employee Labour Input at constant compensation, Domestic basis
Full-time equivalent employment, which equals number of full-time equivalent jobs annual average

Chart 2. IS B's JOB WITH AN ENTERPRISE AN EMPLOYEE OR A SELF-EMPLOYMENT JOB?


Does B work for a corporation or run a one-person incorporated enterprise?
Yes
No
Is B owner and working boss, active partner or co-operative member of a non-incorporated enterprise?
Yes
Does the enterprise have employees?
No
Yes
Does B work in a family enterprise without remuneration fixed by an implicit or explicit contract?
Yes
No
Is B's production entirely for own consumption or capital formation of his or her family
Yes
No
Does B select and provide significant inputs (other than work clothes or workspace in his or her dwelling) for which he or she is not separately reimbursed?
Yes
No
Does the implicit or explicit contract terminate when the items or tasks it specifies and requires have been provided or performed by B?
Yes
No
Own-account
Employer
B has an employee job
B has a self-employment job